

What is claimed is:

- Sub A1>* 1. A notifying device comprising a vibrator to be resonated by a drive signal fed thereto, and a signal preparing circuit for feeding the drive signal to the vibrator, the notifying device being characterized in that the signal preparing circuit prepares a drive signal varying in frequency within a predetermined range including the resonance frequency of the vibrator and feeds the drive signal to the vibrator.
- 10 2. A notifying device according to claim 1 wherein the variation of the frequency of the drive signal corresponds to a variation in the resonance frequency of the vibrator due to tolerances of specifications on which the resonance frequency is dependent.
- 15 3. A notifying device according to claim 1 or 2 wherein the resonance frequency of the vibrator is a low frequency of up to hundreds of hertz, and the vibration of the vibrator has at the resonance frequency an amplitude generally perceivable by the human body.
- 20 4. A notifying device according to *any one of claims 1* *to 3* wherein the drive signal has an alternating waveform of rectangular waves or sine waves having a frequency periodically varying at 0.5 to 10 Hz.

5. A notifying device according to claim 4 wherein the frequency of the drive signal periodically varies at 1.37 to 2.98 Hz.

6. A notifying device according to claim 5 wherein the 5 frequency of the drive signal periodically varies at 2.18 Hz.

a 7. A notifying device according to ~~any one of claims 1 to 6~~ <sup>claim 1</sup> wherein the frequency of the drive signal varies in the form of triangular waves, sine waves or sawtooth waves 10 having the definite range as the amplitude thereof.

a 8. A notifying device according to ~~any one of claims 1 to 7~~ <sup>claim 1</sup> wherein the frequency of the drive signal gradually increases or gradually decreases stepwise within the definite range.

a 15 9. A notifying device according to ~~any one of claims 1 to 8~~ <sup>claim 1</sup> wherein the vibrator comprises a casing, a diaphragm having a fixed end on an inner peripheral wall of the casing, a magnet attached to a free end of the diaphragm, and a coil disposed as opposed to the magnet, and the drive 20 signal is fed to the coil.

*Sub 3* 10. A wireless communications system comprising a notifying device for notifying the user of incoming calls, the notifying device comprising a vibrator to be resonated

by a drive signal fed thereto, and a signal preparing circuit for feeding the drive signal to the vibrator, the wireless communications system being characterized in that the signal preparing circuit prepares a drive signal varying in frequency within a predetermined range including the resonance frequency of the vibrator and feeds the drive signal to the vibrator.

11. A wireless communications system having incorporated therein a notifying device for performing different kinds of notifying operations including notification of incoming calls, the notifying device comprising a vibrator to be resonated by a drive signal fed thereto, and a drive signal feed circuit for feeding the drive signal to the vibrator, the wireless communications system being characterized in that the drive signal feed circuit comprises:

command signal preparing means for preparing notification command signals which are different for different contents of notification in conformity with the content, and  
drive signal preparing means operative in response to the notification command signal to prepare a drive signal which varies in frequency within a determined range including the resonance frequency of the vibrator and which differs in

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the state of variation for the different notification command signals and to feed the drive signal to the vibrator.

12. A wireless communications system according to  
5 claim 11 wherein the drive signal prepared by the drive signal preparing means varies in frequency continuously in conformity with the notification command signal or intermittently at a specified period in conformity with the notification command signal.

10 13. A wireless communications system according to  
claim 11 wherein the drive signal prepared by the drive signal preparing means varies in frequency at a specified period in conformity with the notification command signal.

a 14. A wireless communications system according to <sup>Claim 11</sup> any  
15 ~~one of claims 11 to 13~~ wherein the variation of frequency of the drive signal prepared by the drive signal preparing means corresponds to a variation in the resonance frequency of the vibrator due to tolerances for specifications which govern the resonance frequency.

a 20 15. A wireless communications system according to <sup>Claim 11</sup> any  
a ~~one of claims 11 to 14~~ wherein the resonance frequency of the vibrator is a low frequency of up to hundreds of hertz, and the vibration of the vibrator at the resonance

frequency has an amplitude generally perceptible by the human body.

### Claim 11

16. A wireless communications system according to any  
one of claims 11 to 15 wherein the command signal preparing  
means prepares an incoming call notifying command signal  
for notifying the user of an incoming call, a caller  
notifying command signal for distinguishing callers, and/or  
a mode notifying command signal for notifying the user of  
an operation mode of the system.

## Claim 11

17. A wireless communications system according to <sup>any</sup>  
~~one of claims 11 to 16~~ wherein the vibrator of the  
notifying device comprises a casing, a diaphragm having a  
fixed end on an inner peripheral wall of the casing, a  
magnet attached to a free end of the diaphragm, and a coil  
disposed as opposed to the magnet, and the drive signal is  
fed to the coil.